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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,863	12/12/2000	Kei Murayama	849-00	4384

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EXAMINER

KIBLER, VIRGINIA M

ART UNIT PAPER NUMBER

2623

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/734,863

Applicant(s)

MURAYAMA ET AL.

Examiner

Virginia M Kibler

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>09032004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment received on 9/10/04 has been entered. Claim 4 remains pending.

Response to Arguments

2. Applicant's arguments with respect to claim 4 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichihara (6,133,052) in view of Watanabe et al. ("Telecentric Optics for Focus Analysis").

Regarding claim 4, Ichihara discloses a shaping step of shaping the top portions of the bumps into a planar shape by coining such that the top portions of all of the bumps of the inspection object are on the same plane (Col. 5, lines 16-63); an illumination step of illuminating the top portions with light vertical thereto through an optical system (Col. 5, lines 64-67, Col. 6, lines 1-34; Figure 1), an observation step of observing the images of the top portions in a predetermined range of the inspection object (Col. 6, lines 4-14), a processing step of analyzing the shapes of the bumps on the basis of the images of the top portion by the observation portion

Art Unit: 2623

(Col. 7, lines 6-16), and the processor step including analyzing stage of analyzing the areas of the planar top portion of each of the bumps Figs. 4A-4E (Col. 7, lines 16-20), and judging stage of judging whether or not the area of the top portion falls within a predetermined range (Col. 7, lines 35-43) and judging whether the shapes of said bumps are within a predetermined range (Col. 2, lines 52-67, Col. 3, lines 1-30; Col. 7, lines 34-43). While Ichihara does not appear to specify judging the heights of said bumps, Ichihara discloses judging whether measured values of the bumps are within a predetermined range (Abstract; Col. 2, lines 52-67, Col. 3, lines 1-30; Col. 7, lines 34-43) including shape and dimensions of the bumps. It would have been obvious to one of ordinary skill in the art to have modified the measured values disclosed by Ichihara to include heights of the bumps. The motivation for doing so would have been because it is well known in the art to compare the height to a predetermined range for shape inspection and it would enhance the accuracy of the system. Ichihara discloses an illumination device and an observation optical system, but does not appear to recognize illuminating with a parallel pencil of light vertical thereto through a telecentric optical system. Watanabe discloses using a telecentric optical system (Sect. 1-2) with a vertical parallel pencil of light (Figure 2) whereby the optical axis is in conformity with that of illumination optical system (Sect. 2.2). Ichihara and Watanabe are combinable because they from the same field of endeavor of machine vision. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the optical system disclosed by Ichihara to include a telecentric optical system. The motivation for doing so would have been because it is well known in the art and provides a solution to the problem of magnification variation due to change in focus setting (Sect 1; Sect.

Art Unit: 2623

6). Therefore, it would have been obvious to combine Ichihara with Watanabe to obtain the invention as specified in claim 4.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

Art Unit: 2623

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Virginia Kibler can be reached on (703) 306-4072. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Virginia Kibler
1/18/05

MEHRDAD DASTOURI
PRIMARY EXAMINER

